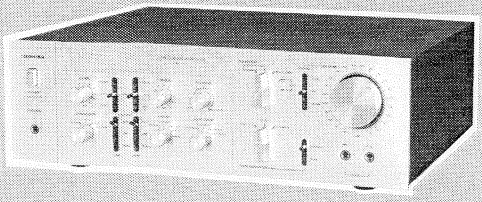
TOSHIBA

STEREO AMPLIFIER

SB-820



SPECIFICATIONS

■ Main-Amplifier

Continuous output:	20 Hz ~ 20 kHz (8Ω) 82W + 82W (4Ω) 100W + 100W 1 kHz (8Ω) 90W + 90W (4Ω) 110W + 110W
Distortion factor:	Total harmonic distortion 0.1% (at rated output) 0.05% (at 1W output) Cross modulation distortion 0.1% (at rated output) 0.05% (at 1W output)
Frequency characteristic:	10 Hz ~ 80 kHz $^{+0\mathrm{dB}}_{-1\mathrm{dB}}$
Output band width:	6 ~ 100 kHz 8Ω IHF 0.1% Both channel drive
Impedance:	1V (50 kΩ)
Residual noise:	Max. 0.3mV (8Ω)
Damping factor:	Min. 40
Speaker impedance:	4Ω ~ 16Ω (8Ω ~ 16Ω for A+B only)

■ Pre-Amplifier

Impedance:	PHONO 1	2.0 mV (50 kΩ)
	PHONO 2	2.0 mV (50 kΩ, 100 kΩ)
	TUNER	150 mV (50 kΩ)
	AUX 1, 2	150 mV (50 kΩ)
Recording output:	TAPE REC	150 mV
	DIN	30 mV
Rated output:	PRE OUT	1 V
Frequency characteristic:	10 Hz ~ 50 kHz $^{+0\,\mathrm{dB}}_{-1\,\mathrm{dB}}$ (AUX)	
Total harmonic distortion factor:	0.02%	
Tone control:	BASS (20 Hz) ±10dB (Turnover frequency: 400 Hz, 200 Hz) TREBLE (50 kHz) ±10dB (Turnover frequency: 2.5 kHz, 5 kHz)	
Filter:	LOW	10 Hz, 30 Hz (12dB/oct.)
	HIGH	20 kHz, 8 kHz (12dB/oct.)
Muting:	-10dB, -20dB	
Equalizer deviation:	(30 ~ 15 kHz) ±0.2dB	
Max. allowable PHONO input:	(1 kHz) 600 mV (Higher harmonics distortion factor: 0.1%)	
SN ratio:	PHONO	73dB (IHF, short circuit, A network)
	AUX	90dB (IHF, short circuit, A network)
Power source voltage:	AC 120V 60 Hz or 220/240 V ~ 50 Hz	
Power consumption:	330W or 4A (for CSA model) 500W (220/240 V ~ 50 Hz) 680W (for BEAB model)	
Dimensions (mm):	450 x 148 x 375	
Weight:	16 kg	

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OPERATING CONTROLS

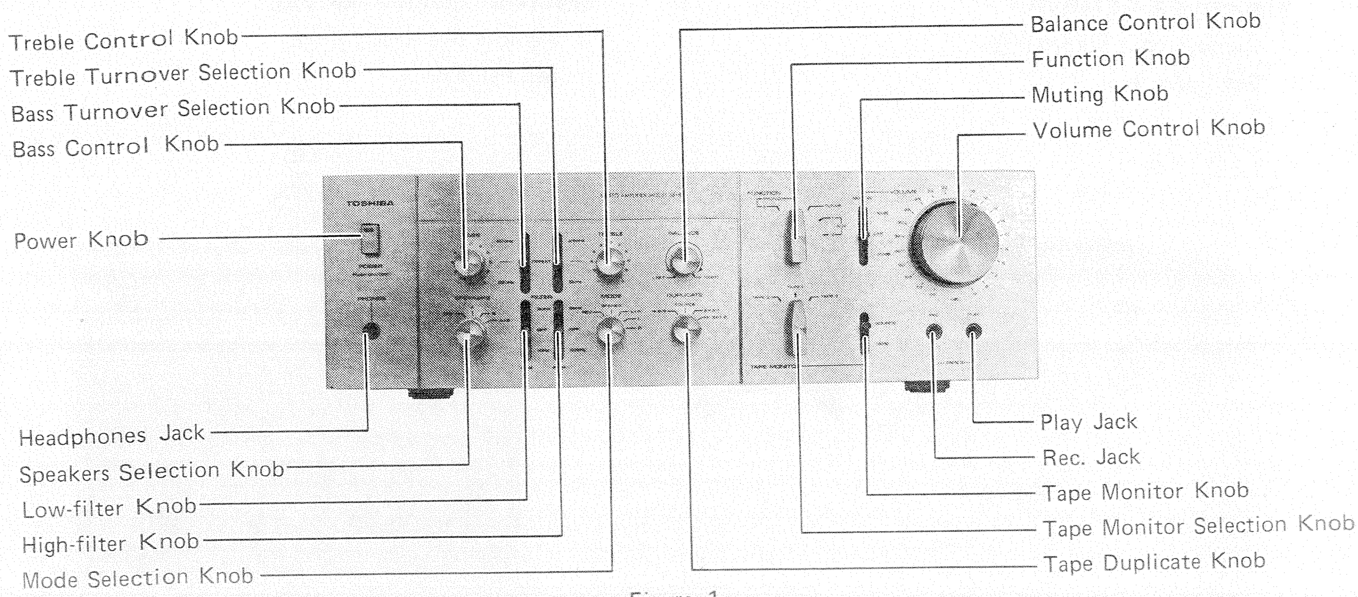

Treble Control Knob
Treble Turnover Selection Knob
Bass Turnover Selection Knob
Bass Control Knob
Power Knob
Headphones Jack
Speakers Selection Knob
Low-filter Knob
High-filter Knob
Mode Selection Knob
Balance Control Knob
Function Knob
Muting Knob
Volume Control Knob
Play Jack
Rec. Jack
Tape Monitor Knob
Tape Monitor Selection Knob
Tape Duplicate Knob

Figure 1.

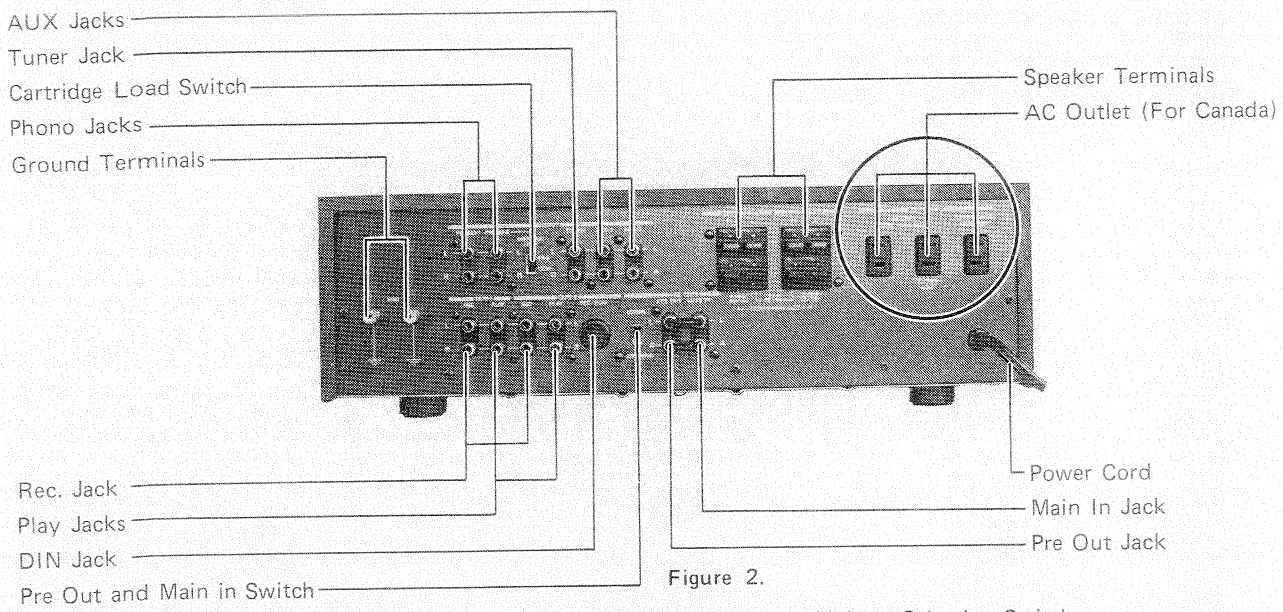

AUX Jacks
Tuner Jack
Cartridge Load Switch
Phono Jacks
Ground Terminals
Speaker Terminals
AC Outlet (For Canada)
Rec. Jack
Play Jacks
DIN Jack
Pre Out and Main in Switch
Power Cord
Main In Jack
Pre Out Jack

Figure 2.

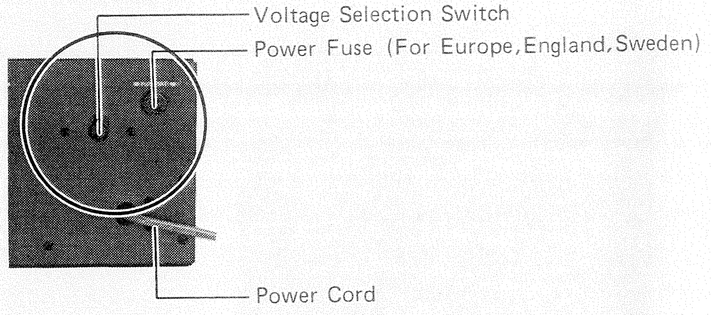

Voltage Selection Switch
Power Fuse (For Europe, England, Sweden)
Power Cord

Figure 3.

DISASSEMBLY INSTRUCTIONS

TOP COVER REMOVAL

1. Remove four screws (Ⓐ).
   See figure 4.

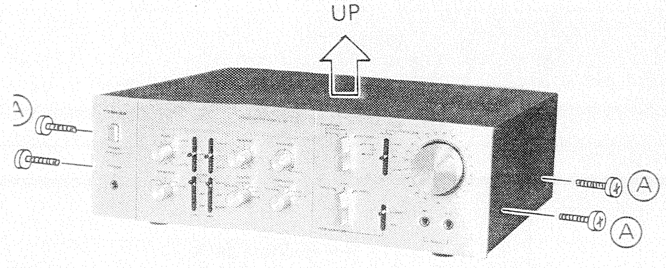


Figure 4.

BOTTOM COVER REMOVAL

1. Remove five screws (Ⓑ).
   See figure 5.

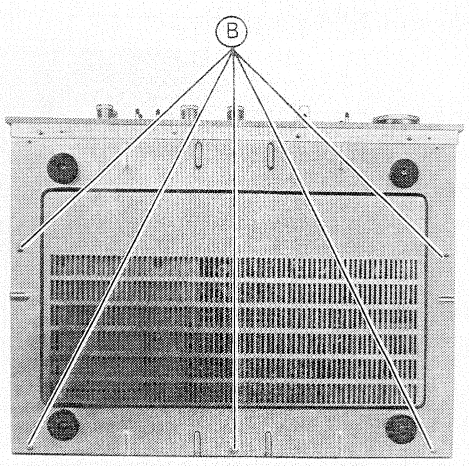


Figure 5.

FRONT PANEL REMOVAL

1. Pull out the eight Knobs (Ⓒ). See figure 6.
2. Remove three screws (Ⓓ). See figure 7.
3. Remove three screws (Ⓔ). See figure 8.

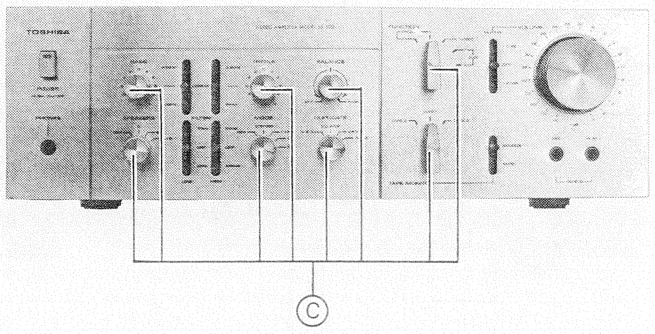


Figure 6.

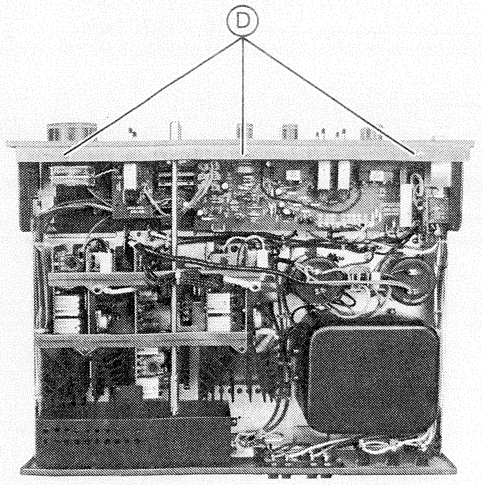


Figure 7.

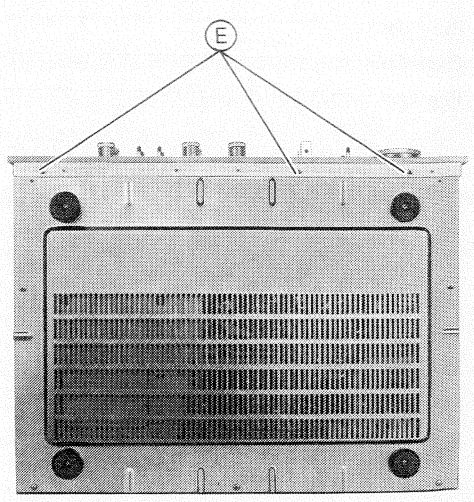


Figure 8.

ADJUSTMENTS INSTRUCTIONS

1. Power Voltage Adjustment
   1. Connect the positive (+) lead of a meter which allows to measure DC140V to orange colored terminal of 3P SOCKET which is connected to TONE P.C. Board and negative lead to blue colored terminal. (Insert 3P SOCKET into TONE P.C. Board ⑦ and connect its clip to chassis.)
   2. Turn VR01 on SUPPLY P.C. Board with screwdriver, and adjust it so the reading on meter is 140V.
   3. After finishing voltage adjustment, remove the equipment and insert 3P SOCKET ⑦ into TONE P.C. Board ⑦.
   4. After adjustment, fix the screw.

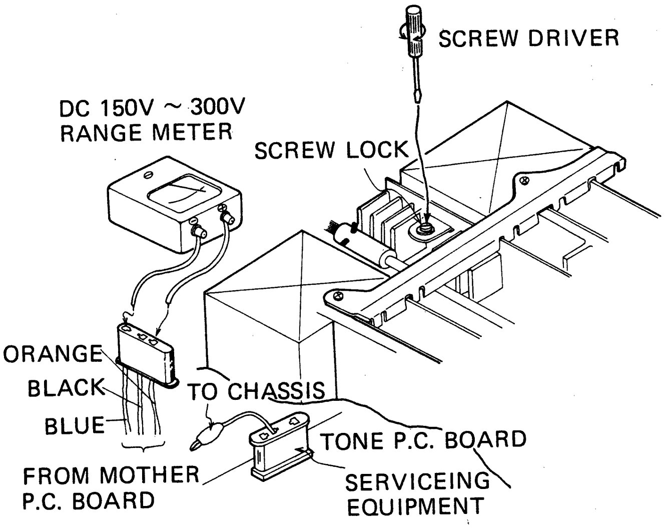

SCREW DRIVER
DC 150V ~ 300V
RANGE METER
SCREW LOCK
ORANGE
BLACK
BLUE
TO CHASSIS
TONE P.C. BOARD
FROM MOTHER
P.C. BOARD
SERVICEING
EQUIPMENT

Figure 9.

2. Idle Current Adjustment
   1. Connect a meter to test point and adjust VR01 with screwdriver so the reading on meter is 0.0044V.
   2. The allowable voltage range ', from 0.0033V to 0.0055V.
   3. Adjustment must be mode on both channels.
   4. After adjustment, fix the screw.

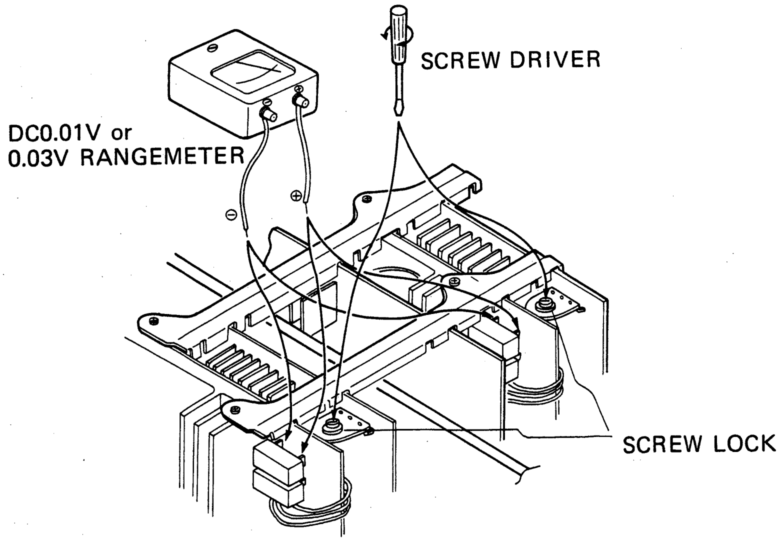
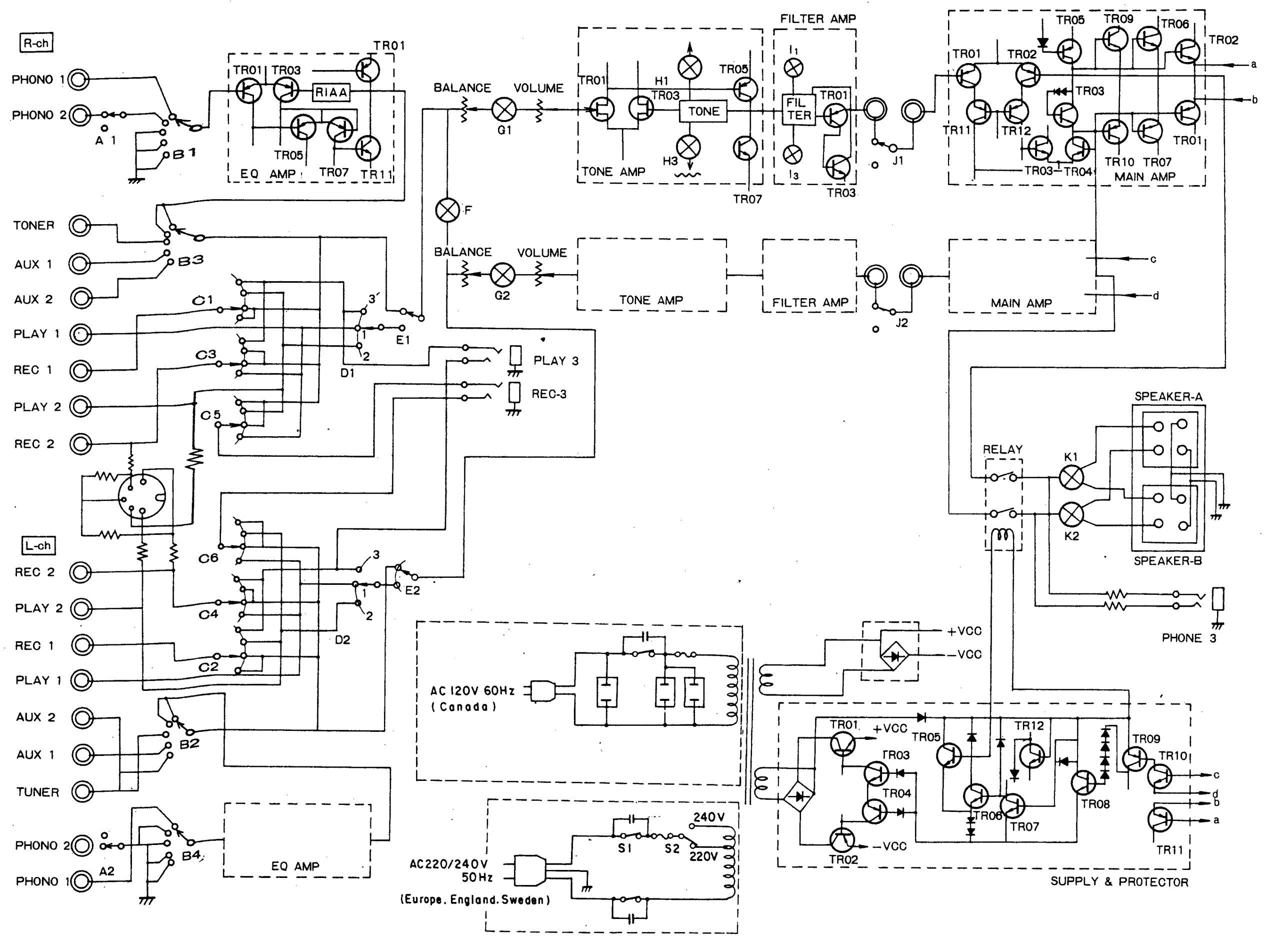

SCREW DRIVER
DC0.01V or
0.03V RANGEMETER
⊖
⊕
SCREW LOCK

Figure 10.

BLOCK DIAGRAM


R-ch
PHONO 1
PHONO 2
A 1
B1
TR01
TR03
RIAA
TR05
TR07
TR11
EQ AMP
TONER
AUX 1
AUX 2
PLAY 1
REC 1
PLAY 2
REC 2
C1
C3
C5
B3
D1
E1
BALANCE
VOLUME
G1
F
G2
TONE AMP
H1
H3
TONE
FILTER AMP
I1
I3
FIL TER
J1
J2
MAIN AMP
TR02
TR06
TR09
TR10
TR12
TR04
PLAY 3
REC-3
L-ch
C6
C4
C2
B2
B4
A2
TUNER
D2
E2
AC 120V 60Hz (Canada)
AC220/240V 50Hz (Europe. England. Sweden)
240V
220V
S1
S2
+VCC
−VCC
TR08
SUPPLY & PROTECTOR
RELAY
K1
K2
SPEAKER-A
SPEAKER-B
PHONE 3
a
b
c
d

A1 ~ A2	CARTRIDGE LOAD (140k ohm, 47k ohm)
B1 ~ B4	SELECTOR (PHONO 2, PHONO 1, TONER, AUX)
C1 ~ C6	DUPLICATE
D1 ~ D2	TAPE MONITOR (TAPE 1, TAPE 2, TAPE 3)
E1 ~ E2	TAPE MONITOR (SOURCE, TAPE)
	MODE (REVERSE, STEREO, L+R, L, R)
G1 ~ G2	MUTING (+10 dB, OFF, −20 dB)
H1 ~ H2	TONE (2.5 kHz, DEFEET, 5 kHz) TREBLE
H3 ~ H4	TONE (400 Hz, DEFEET, 200 Hz) BASS
I3 ~ I2	FILTER (20 kHz, OFF, 30 Hz) HIGH
I3 ~ I4	FILTER (15 Hz, OFF, 30 Hz) LOW
J1 ~ J2	PRE-MAIN SWITCH (NORMAL-SEPARATE)
K1 ~ K2	SPEAKERS (OFF, A, B, A+B)

ELECTRICAL PARTS LOCATIONS

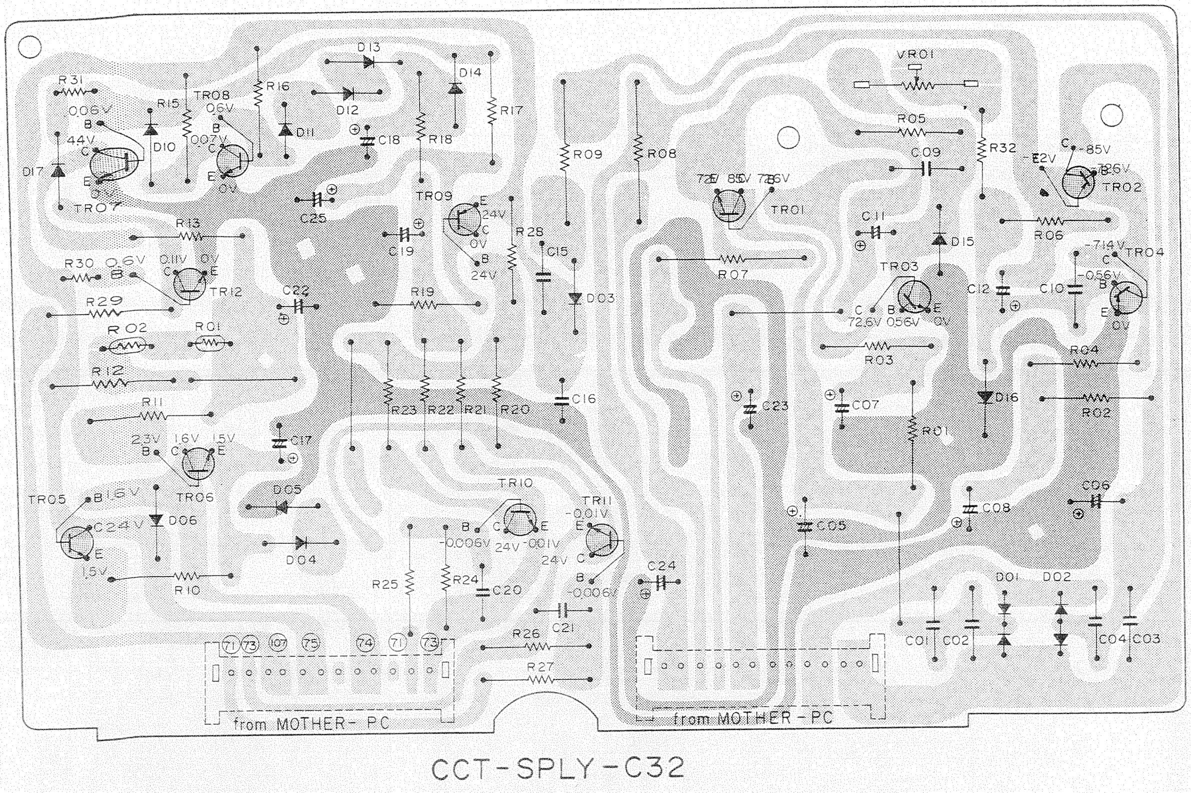

D13
D14
R31
R16
R15
TRO8
0.06V
0.6V
B
44V
0.07V
D12
R17
D11
C18
R18
D10
D17
C
E
0V
TRO7
R09
R08
VR01
R05
C09
R32
-85V
-E2V
-78.6V
TRO2
TRO1
72.6V
85V
72.6V
C25
TRO9
24V
R13
C19
R28
C15
C11
D15
R06
R30
0.6V
0.11V
0V
TR12
R29
C22
R19
D03
R07
TRO3
C12
C10
-71.4V
TRO4
-0.56V
72.6V
0.56V
0V
R02
R01
R12
R23
R22
R21
R20
C16
R03
R04
R11
C23
C07
D16
R02
R01
2.3V
1.6V
1.5V
C17
TRO5
B 1.6V
TRO6
D05
TR10
TR11
-0.01V
C24V
D06
-0.006V
24V
-0.01V
C06
C08
C05
1.5V
R10
D04
R25
R24
C20
-0.006V
C24
D01
D02
C21
R26
C01
C02
C04
C03
R27
71
73
107
75
74
71
73
from MOTHER-PC
from MOTHER-PC
CCT-SPLY-C32

Figure 9. Solder Side of Power Supply & Protector P.C. Board (SPLY-C32)

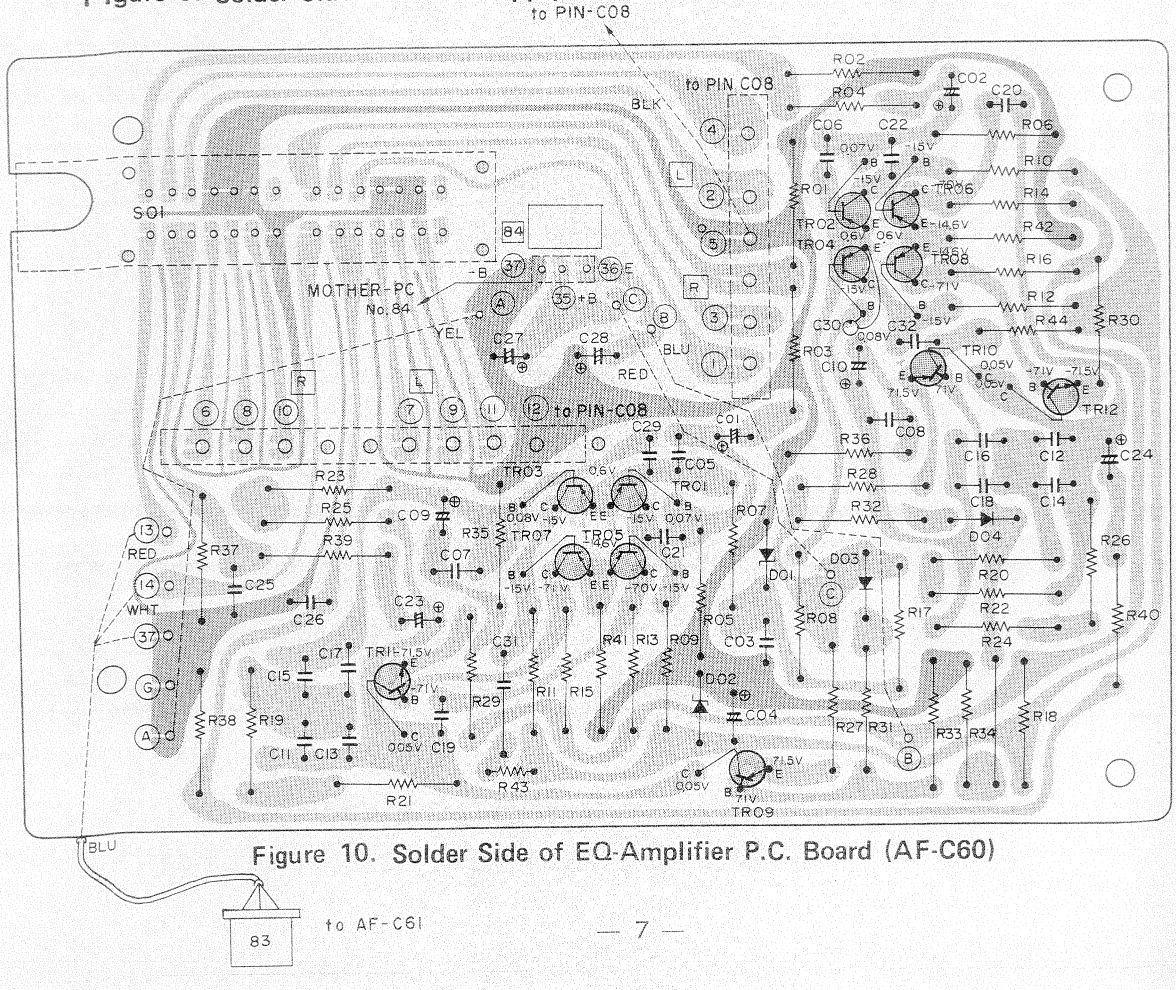

to PIN-C08
R02
to PIN C08
C02
BLK
R04
C20
C06
C22
R06
0.07V
-15V
R10
4
L
2
5
R01
TRO2
TRO6
R14
-14.6V
R42
TRO4
TRO8
R16
SO1
84
-B
37
36
E
MOTHER-PC
No. 84
35
+B
A
C
B
R
3
1
R12
C30
C32
R44
R30
0.08V
TR10
YEL
C27
C28
BLU
R03
C10
0.05V
-71V
-71.5V
RED
71.5V
71V
TR12
R
L
6
8
10
7
9
11
12
to PIN-C08
C29
C01
C08
R36
C16
C12
C24
C05
R23
TRO3
TRO1
R28
C18
C14
R25
C09
B
0.08V
-15V
-15V
0.07V
R07
R32
D04
R35
TRO7
TRO5
C21
R26
R39
-14.6V
13
RED
R37
C07
D01
D03
R20
14
WHT
C25
C26
-15V
-71V
-70V
-15V
R22
R05
R08
R17
R40
37
C23
R24
C31
R41
R13
R09
C03
C17
TR11
-71.5V
G
C15
D02
C04
-71V
R29
R11
R15
A
R38
R19
R27
R31
R33
R34
R18
C11
C13
0.05V
C19
B
R21
R43
0.05V
71.5V
71V
TRO9
BLU
83
to AF-C61

Figure 10. Solder Side of EQ-Amplifier P.C. Board (AF-C60)

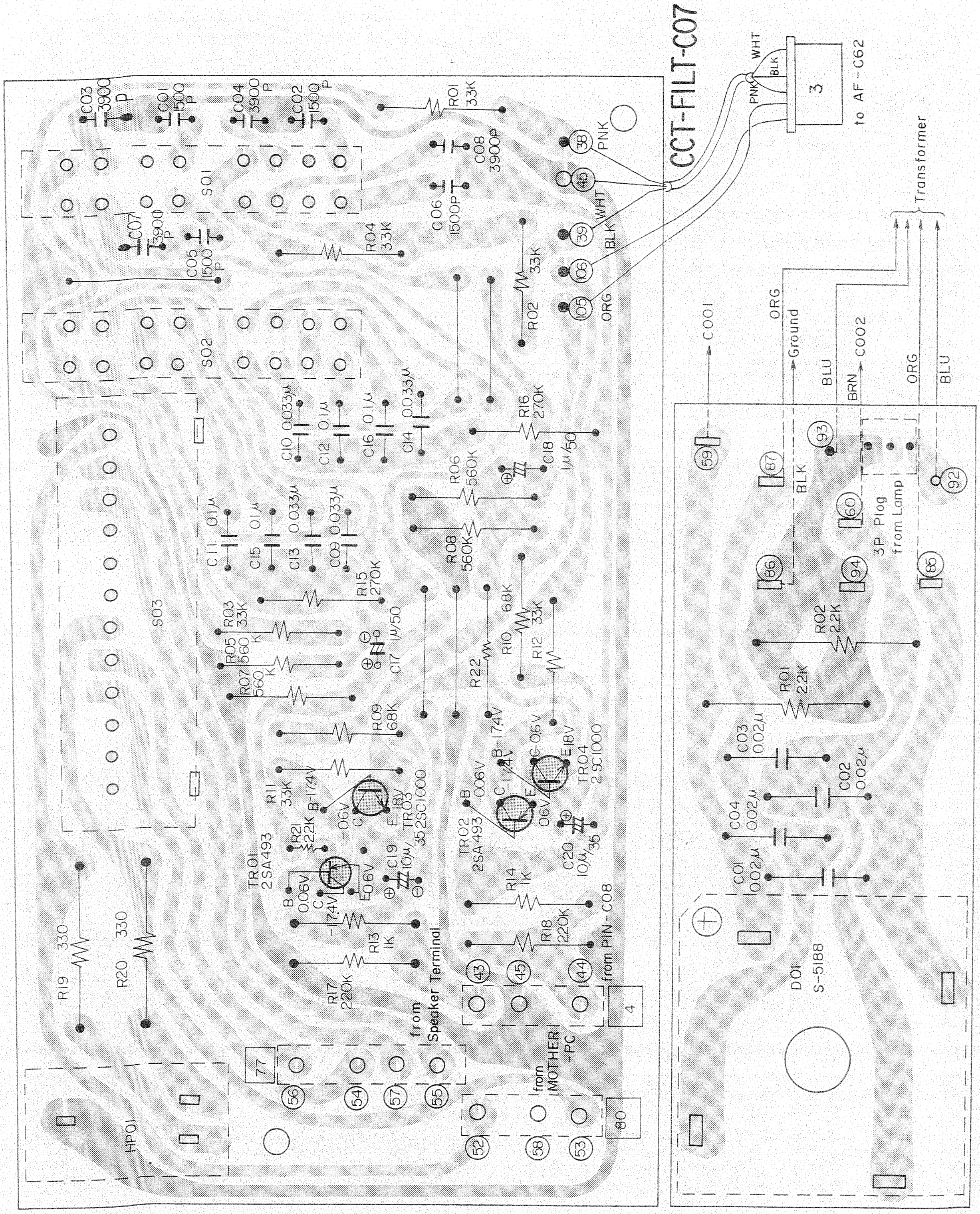

CCT-FILT-C07
CCT-SPLY-C31
to AF-C62
Transformer
C001
Ground
C002
3P Plug from Lamp
from Speaker Terminal
from MOTHER-PC
from PIN-C08
TR01 2SA493
TR02 2SA493
TR03 2SC1000
TR04 2SC1000
D01 S-5188
S01
S02
S03
HP01
PNK
WHT
BLK
ORG
BRN
BLU

Figure 11. Solder Side of Filter Amplifier P.C. Board (FILT-C07)

& Solder Side of Power Supply P.C. Board (SPLY-C31)

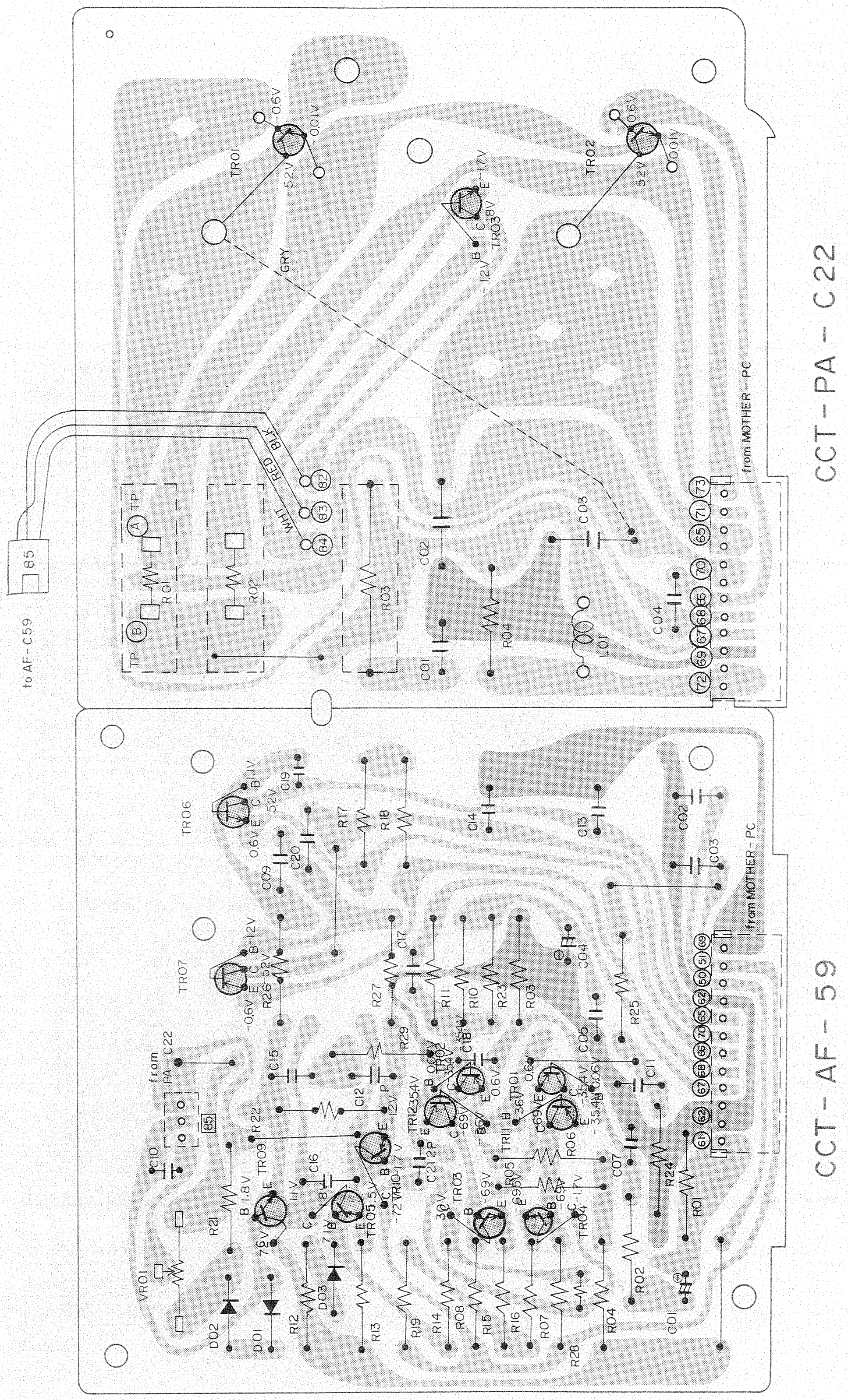

CCT-PA-C22
from MOTHER-PC
to AF-C59
85
GRY
BLK
RED
WHT
TP
A
B
TR01
TR02
TR03
R01
R02
R03
R04
C01
C02
C03
C04
L01
-0.6V
-0.01V
52V
-1.7V
-12V
CCT-AF-59
from MOTHER-PC
from PA-C22
TR01
TR03
TR04
TR05
TR06
TR07
TR11
TR12
VR01
D01
D02
D03
R01
R02
R04
R24
R25
R26
R27
R29
C01
C02
C03
C04
C05
C07
C09
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20

Figure 12. Solder Side of Driver Amplifier P.C. Board (AF-C59)

& Solder Side of Power Amplifier P.C. Board (PA-C22)

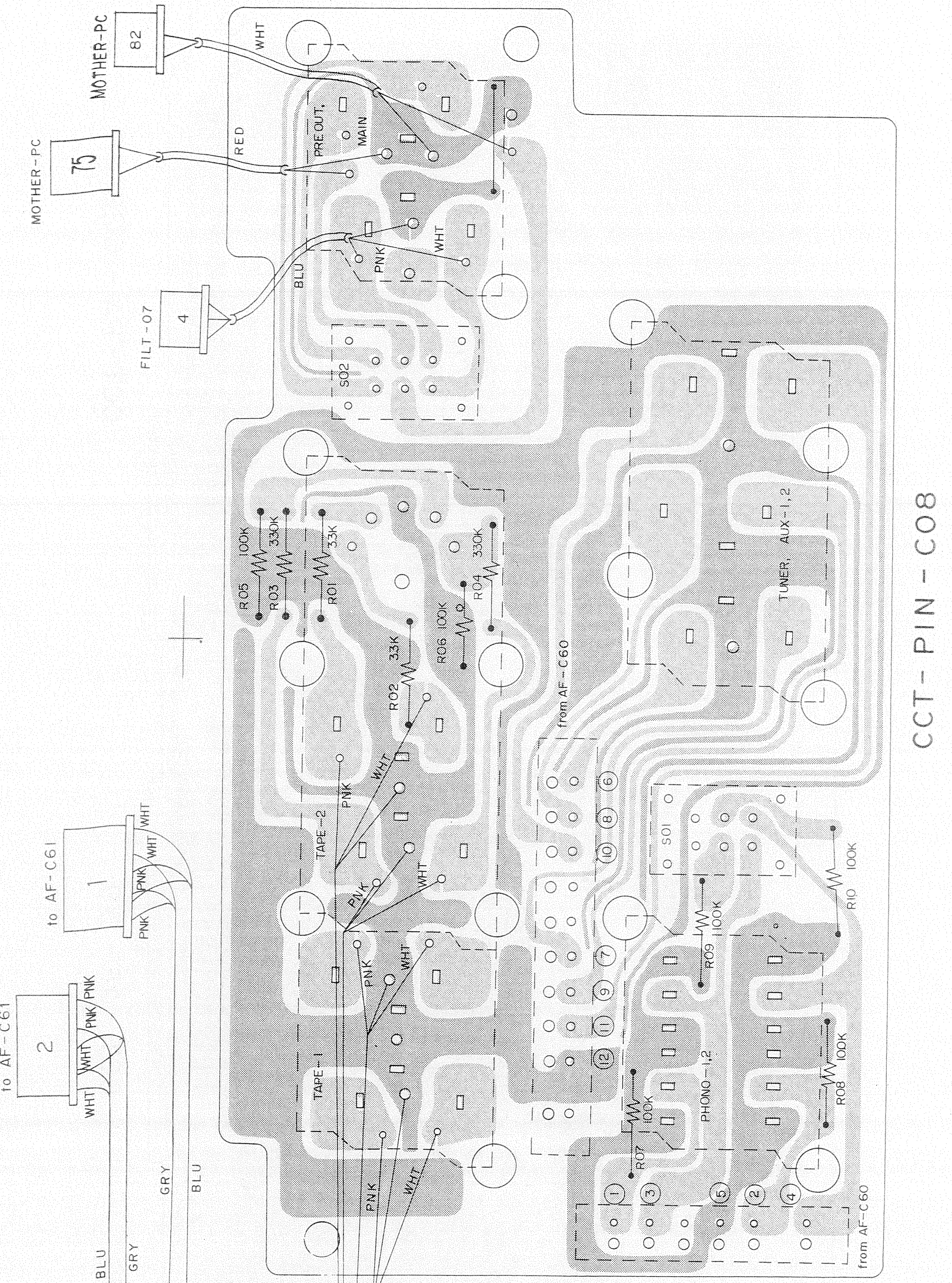

MOTHER-PC
82
MOTHER-PC
75
FILT-07
4
WHT
RED
PRE OUT,
MAIN
BLU
PNK
WHT
SO2
R05 100K
R03 330K
R01 33K
R04 330K
R06 100K
R02 33K
TAPE-2
TAPE-1
PNK
WHT
to AF-C61
1
to AF-C61
2
WHT
PNK
GRY
BLU
from AF-C60
TUNER, AUX-1,2
SO1
R10 100K
R09 100K
R07 100K
R08 100K
PHONO-1,2
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫
from AF-C60
CCT-PIN-C08

Figure 13. Solder Side of Pin Jack P.C. Board (PIN-C08)

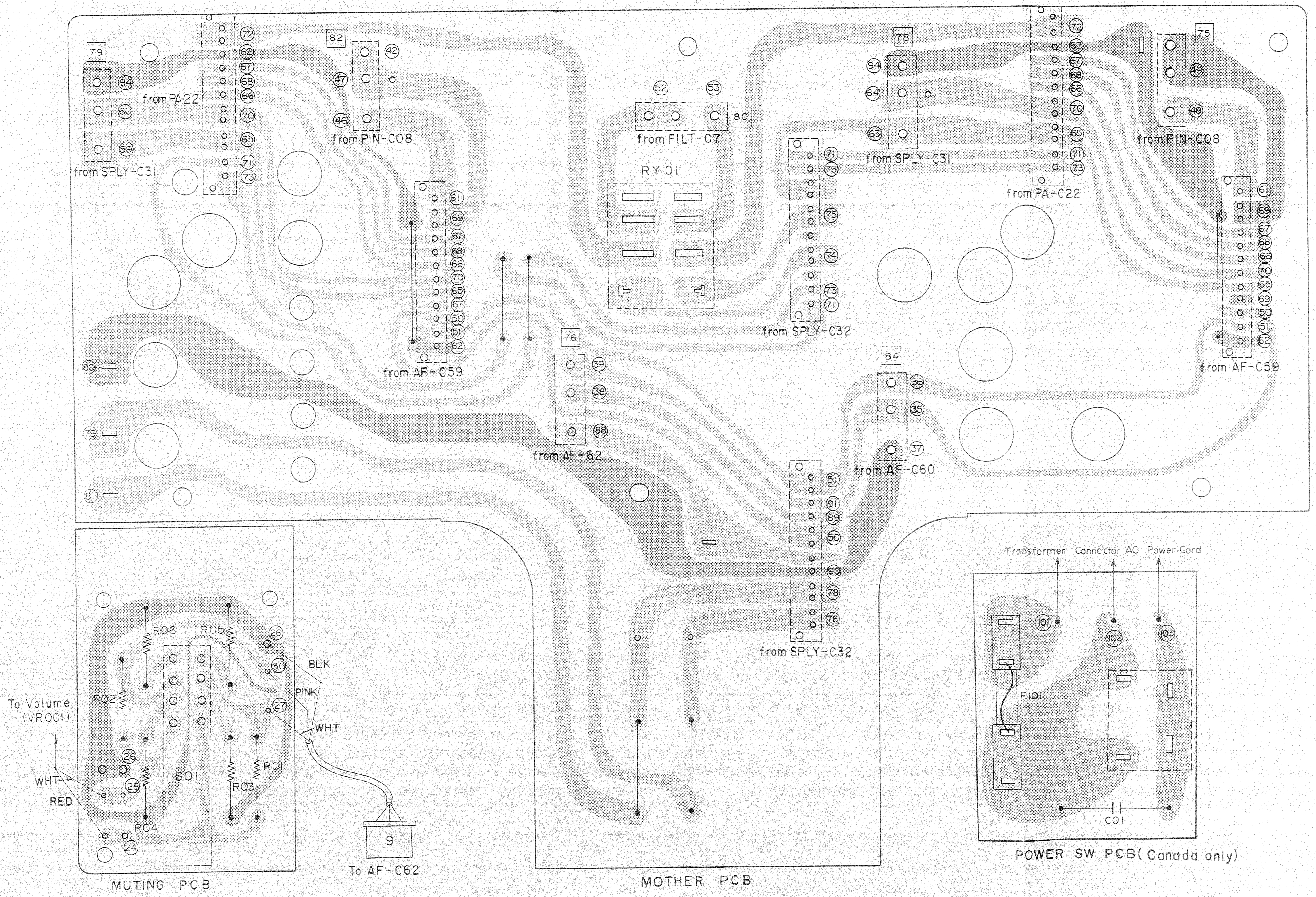

79
94
60
59
from SPLY-C31
from PA-22
72
62
67
68
66
70
65
71
73
82
42
47
46
from PIN-C08
61
69
67
68
66
70
65
67
50
51
62
from AF-C59
80
79
81
76
39
38
88
from AF-62
52
53
80
from FILT-07
RY01
78
94
64
63
from SPLY-C31
71
73
75
74
73
71
from SPLY-C32
72
62
67
68
66
70
65
71
73
from PA-C22
75
49
48
from PIN-C08
61
69
67
68
66
70
65
69
50
51
62
from AF-C59
84
36
35
37
from AF-C60
51
91
89
50
90
78
76
from SPLY-C32
R06
R05
26
30
BLK
PINK
27
WHT
R02
To Volume
(VR001)
26
28
S01
R03
R01
WHT
RED
R04
24
9
To AF-C62
MUTING PCB
MOTHER PCB
Transformer
Connector AC
Power Cord
101
102
103
F101
C01
POWER SW PCB(Canada only)

Figure 14. Solder Side of Mother, Muting and Power Switch P.C. Board

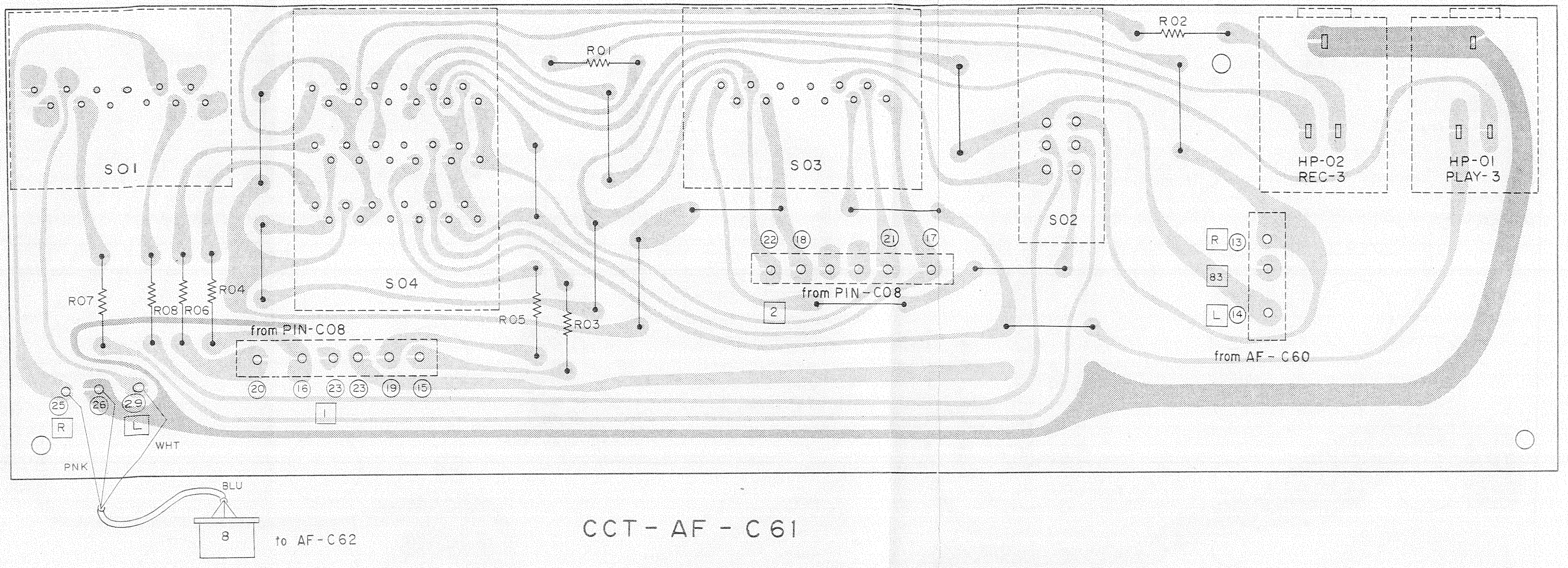

SO1
SO4
SO3
SO2
RO1
RO2
RO3
RO4
RO5
RO6
RO7
RO8
HP-O2
REC-3
HP-O1
PLAY-3
from PIN-CO8
from PIN-CO8
from AF - C60
R
L
83
PNK
WHT
BLU
8
to AF-C62
CCT - AF - C61

Figure 15. Solder Side of Switch P.C. Board (AF-C61)

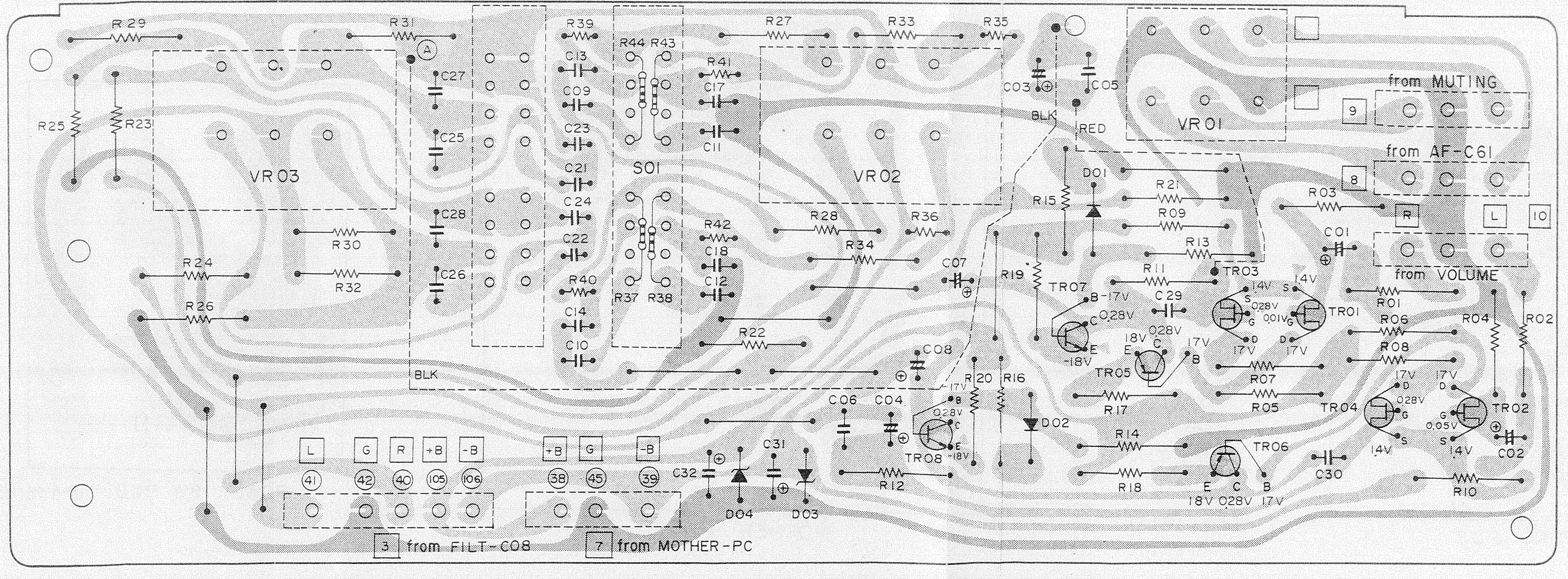
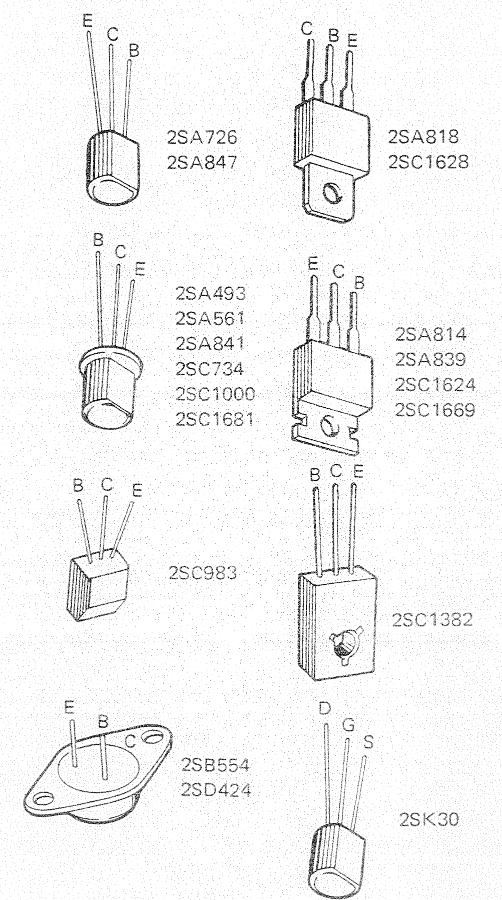

R29
R31
R39
R44 R43
R27
R33
R35
R25
R23
VR03
VR02
VR01
SO1
from MUTING
from AF-C61
from VOLUME
R24
R26
R30
R32
C27
C25
C28
C26
C13
C09
C23
C21
C24
C22
C14
C10
R41
C17
C11
R42
C18
C12
R37 R38
R40
R28
R34
R36
R22
C07
C08
C06
C04
C31
C32
D04
D03
D02
D01
TR08
TR07
TR05
TR06
TR03
TR01
TR04
TR02
R12
R20
R16
R17
R14
R18
R15
R19
R21
R09
R13
R11
C29
RO3
CO1
RO1
RO6
RO8
RO4
RO2
RO7
RO5
R10
C30
CO2
CO3
CO5
BLK
RED
3 from FILT-CO8
7 from MOTHER-PC
CCT - AF - C62

Figure 16. Solder Side of Tone Amplifier P.C. Board (AF-C62)

TRANSISTOR BASE DIAGRAMS


E C B
2SA726
2SA847
C B E
2SA818
2SC1628
B C E
2SA493
2SA561
2SA841
2SC734
2SC1000
2SC1681
E C B
2SA814
2SA839
2SC1624
2SC1669
B C E
2SC983
B C E
2SC1382
E B C
2SB554
2SD424
D G S
2SK30

SWITCH POSITIONS

			Position
AF-C60			
S01	Function	Switch	PHONO-2
AF-C61			
S01	Mode	Switch	NORMAL
S02	Monitor	Switch	OFF
S03	Tape Selector	Switch	TAPE-1
S04	Duplicate	Switch	TAPE-1 → 2
AF-C62			
S01	Turn Over	Switch (TREBLE)	5 kHz
S02	Turn Over	Switch (BASS)	200 Hz
PIN-C08			
S01	Cartridge Load	Switch	100K ohm
S02	PRE MAIN	Switch	NORMAL
MUTING			
S01	Muting	Switch	-10dB
SP-PC			
S01	Speaker	Switch	OFF
FILT-C07			
S01	Filter HIGH	Switch	20 kHz
S02	Filter LOW	Switch	10 Hz

SCHEMATIC DIAGRAM

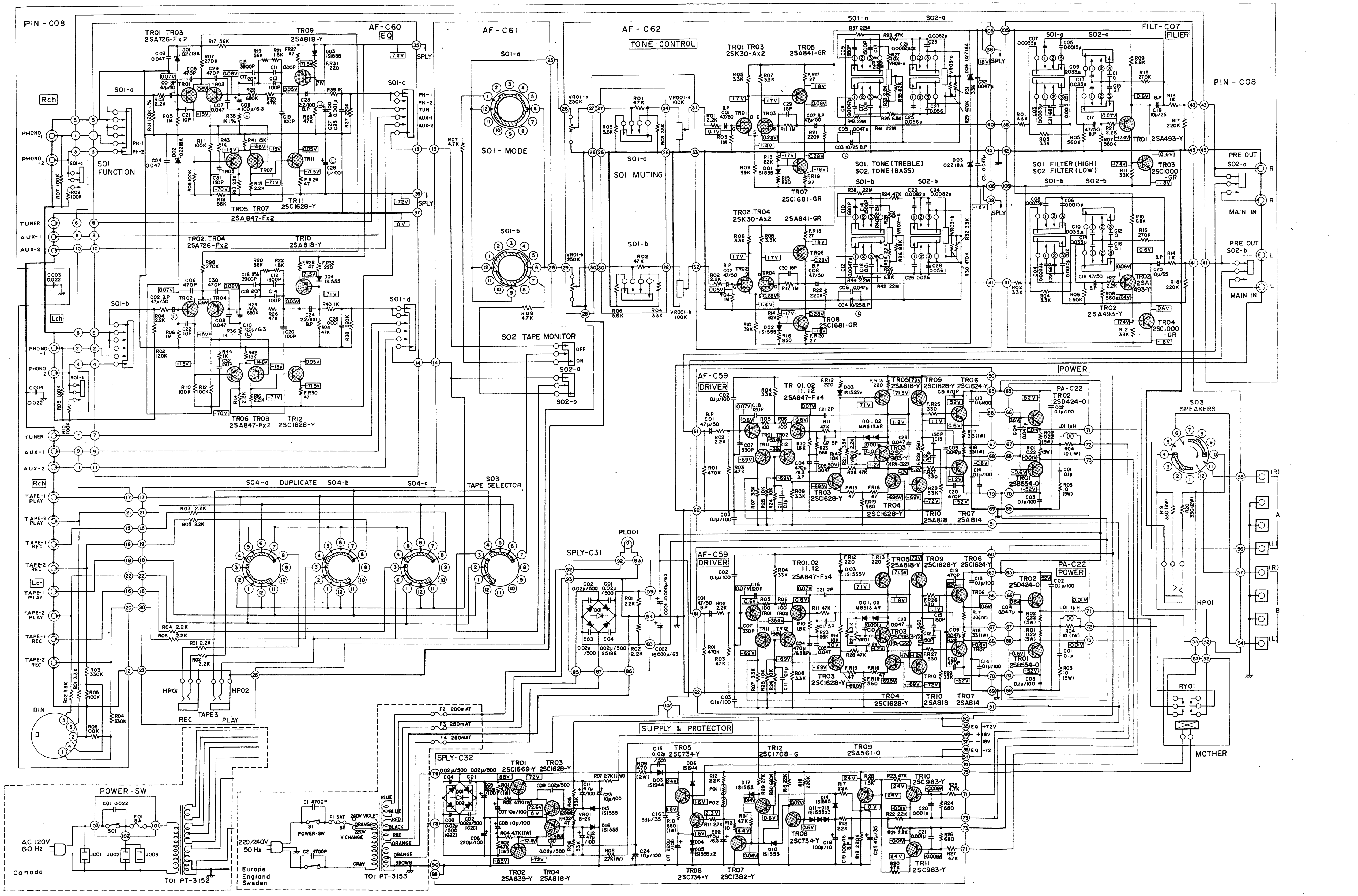

PIN - C08
AF-C60
EQ
AF - C61
AF - C62
TONE CONTROL
FILT-C07
FILIER
PIN - C08
Rch
Lch
PHONO-1
PHONO-2
TUNER
AUX-1
AUX-2
S01 FUNCTION
S01 - MODE
S01 MUTING
S02 TAPE MONITOR
S01. TONE (TREBLE)
S02. TONE (BASS)
S01 FILTER (HIGH)
S02 FILTER (LOW)
PRE OUT
MAIN IN
AF-C59
DRIVER
PA-C22
POWER
S03
SPEAKERS
HP01
RY01
MOTHER
S04-a DUPLICATE S04-b
S04-c
S03
TAPE SELECTOR
TAPE-1 PLAY
TAPE-2 PLAY
TAPE-1 REC
TAPE-2 REC
HP01
HP02
TAPE3
REC
PLAY
DIN
PL001
SPLY-C31
SPLY-C32
SUPPLY & PROTECTOR
POWER-SW
AC 120V 60 Hz
Canada
T01 PT-3152
220/240V 50 Hz
Europe
England
Sweden
T01 PT-3153
SPLY

Figure 17.

1. All resistors: ohms K = 1000 M = 1000000
2. All capacitors: μF P = $\mu\mu F$

EXPLODED VIEW

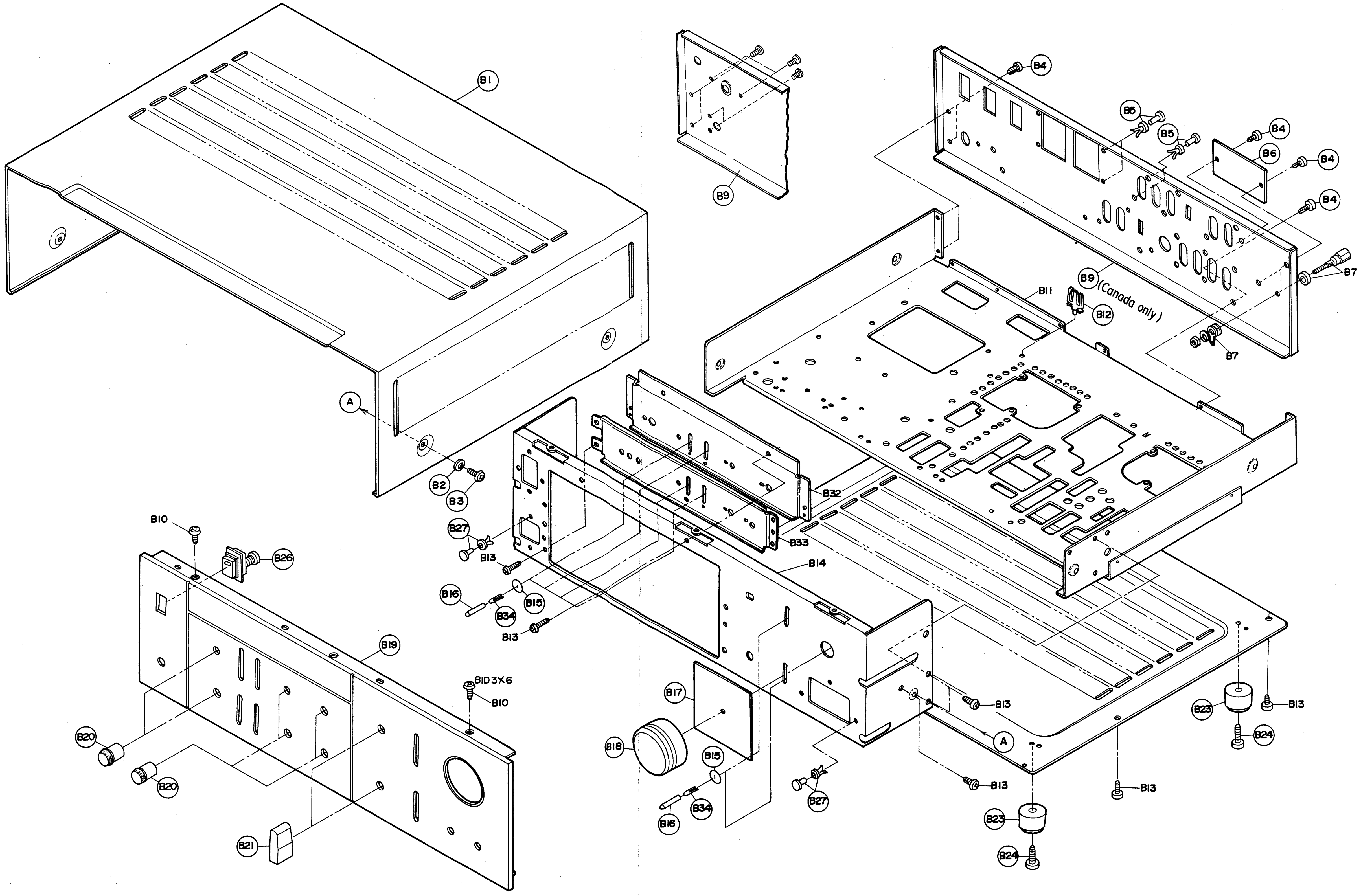

B1
B9
B4
B5
B5
B4
B6
B4
B4
B7
B9 (Canada only)
B11
B12
B7
A
B2
B3
B32
B33
B27
B13
B14
B16
B34
B15
B13
B10
B26
B19
BID3X6
B10
B20
B20
B21
B17
B18
B15
B34
B16
B27
B13
A
B13
B23
B24
B13
B13
B23
B24

Figure 18.

PARTS LIST

Symbol No.	Part No.	Description
TRANSISTORS AND DIODES		
CCT-FILT-C07		
TR01, 02		Transistor, 2SA841-GR
TR03, 04		Transistor, 2SC1000-GR
CCT-PA-C22 (LEFT & RIGHT)		
TR01		Transistor, 2SB554-O
TR02		Transistor, 2SD424-O
TR03		Transistor, 2SC983-Y
CCT-SPLY-C32		
TR01		Transistor, 2SC1669-Y
TR02		Transistor, 2SA839-Y
TR03		Transistor, 2SC1628-Y
TR04		Transistor, 2SA818-Y
TR05, 06, 08		Transistor, 2SC734-Y
TR07		Transistor, 2SC1382-Y
TR09		Transistor, 2SA561-O
TR10, 11		Transistor, 2SC983-Y
TR12	22114438	Transistor, 2SC1708-G
CCT-AF-C59 (LEFT & RIGHT)		
TR01, 02, 11, 12	22114417	Transistor, 2SA847-F
TR03, 04, 09		Transistor, 2SC1628-Y
TR05, 10		Transistor, 2SA818-Y
TR06		Transistor, 2SC1624-Y
TR07		Transistor, 2SA814-Y
CCT-AF-C60		
TR01, 02, 03, 04	22114405	Transistor, 2SA726-F-F/G
TR05, 06, 07, 08	22114417	Transistor, 2SA847-F
TR09, 10		Transistor, 2SA818-Y
TR11, 12		Transistor, 2SC1628-Y
CCT-AF-C62		
TR01, 02, 03, 04		Transistor, 2SK30A-GR
TR05, 06		Transistor, 2SA841-GR
TR07, 08		Transistor, 2SC1681-GR
CCT-SPLY-C31		
D01		Diode, S5188
CCT-SPLY-C32		
D01		Diode, 1G2C1
D02		Diode, 1G2Z1
D03, 06		Diode, 1S1944

Symbol No.	Part No.	Description
D04, 05, 10, 11, 12, 13, 14, 15, 16, 17		Diode, 1S1555V
CCT-AF-C59 (LEFT & RIGHT)		
D01, 02		Diode, M8513A-R
D03		Diode, 1S1555V
CCT-AF-C60		
D01, 02		Diode, 02Z18A
D03, 04		Diode, 1S1555V
CCT-AF-C62		
D01, 02		Diode, 1S1555V
D03, 04		Diode, 02Z18A
ELECTRICAL PARTS		
CCT-FILT-C07		
S01, 02	22146767	Switch, Lever, Filter
S03	22146727	Switch, Rotary, Speaker
CCT-PIN-C08		
S01, 02	22146733	Switch, Slide, MAIN & Impedance
CCT-AF-C60		
S01	22146964	Switch, Rotary, Mode
CCT-AF-C61		
S01	22146769	Switch, Rotary, Mode
S02	22146768	Switch, Lever, Tape Monitor
S03	22146770	Switch, Rotary, Tape Selector
S04	22146772	Switch, Rotary, Duplicate
CCT-AF-C62		
S01, 02	22146767	Switch, Lever, TONE
S1	22146759	Switch, Power, PUSH (Canada)
	22146204	Switch, Power, PUSH (Europe, England, Sweden)
S2	22146246	Switch, Rotary, Voltage (Europe, England, Sweden)
MUTING-PC		
S01	22146764	Switch, Lever, Muting
HP01	22163519	Jack, 6D-H.P, PHONES
PHONO-1, 2	22163446	Jack, US4P-S
TUNER AUX-1, 2	22163444	Jack, US6P
TAPE-1 PRE OUT MAIN IN	22163443	Jack, US4P

Symbol No.	Part No.	Description
TAPE-2	22163445	Jack, US4P-DIN
TAPE-3	22163530	Jack, 6D-TAPE, REC & PLAY
PL001	22113424	Lamp, Indicator, 50mA, 8V
T01	22223087	Transformer, Power, PT-3153 (Europe, England, Sweden)
	22223086	Transformer, Power, PT-3152 (Canada)
L01	22210107	Coil, 1µH, LH1101
F1	22144335	Fuse, 5AT, 250V (Europe, England, Sweden)
F2	22144331	Fuse, 200mAT, 250V (Europe, England, Sweden)
F3, 4	22144289	Fuse, 250mAT, 250V (Euorpe, England, Sweden)
F01	22144336	Fuse, 8A, 250V (Canada)
RY01	22148637	Relay, DC24.10
J001, 002, 003	22167453	Connector, AC (Canada)
P01, 02	22115278	Posistor
E1	22165075	Holder, Huse (Europe, England, Sweden)
E2	22165078	Holder, Fuse-4P (Europe, England, Sweden)
E3	22176286	Cord, Power, E2ES (Europe)
	22176549	Cord, Power, EPUC (Canada)
	22176547	Cord, Power, BS3 (England)
	22176540	Cord, Power, CLASSI (Sweden)
E4	22162265	Terminal, P8P, Speaker
E5	22754352	Terminal, Ground

CAPACITORS

All capacitors are 50WV, J = ±5%, Mylar unless otherwise noted. D = ±0.5PF, G = ±2PF, K = ±10%, M = ±20%, Z = -20+80%, BP = Non Polarity, L = Low Noise

Symbol No.	Part No.	Description
AF-C60		
C01	22440148	4.7µF, BP, Electrolytic
C02	22440148	4.7µF, BP, Electrolytic
C03	22373473	0.047µF, M
C04	22373473	0.047µF, M
C05	22343471	470PF, M, Ceramic
C06	22343471	470PF, M, Ceramic
C07	22373473	0.047µF, M
C08	22373473	0.047µF, M
C09	22440154	100µF, 63V, BP, Electrolytic
C10	22440154	100µF, 6.3V, BP, Electrolytic
C11	22321076	1300PF, 100V, G, Polystyrene
C12	22321076	1300PF, 100V, G, Polystyrene
C13	22381101	100PF, Polystyrene
C14	22381101	100PF, Polystyrene
C15	22321077	3900PF, 100V, G, Polystyrene
C16	22321077	3900PF, 100V, G, Polystyrene
C17	22381121	120PF, Polystyrene
C18	22381121	120PF, Polystyrene
C19	22381101	100PF, Polystyrene
C20	22381101	100PF, Polystyrene
C21	22362100	10PF, K, Ceramic
C22	22362100	10PF, K, Ceramic
C23	22440156	2.2µF, 100V, BP, Electrolytic
C24	22440156	2.2µF, 100V, BP, Electrolytic
C25	22371102	0.001µF
C26	22371102	0.001µF
C27	22440122	1µF, 100V, L, Electrolytic
C28	22440122	1µF, 100V, L, Electrolytic
C29	22343471	470PF, M, Ceramic
C30	22343471	470PF, M, Ceramic
C31	22381151	150PF, Polystyrene
C32	22381151	150PF, Polystyrene
AF-C62		
C01	22440148	4.7µF, BP, Electrolytic
C02	22440148	4.7µF, BP, Electrolytic
C03	22440155	10µF, 25V, BP, Electrolytic
C04	22440155	10µF, 25V, BP, Electrolytic
C05	22373473	0.047µF, M
C06	22373473	0.047µF, M
C07	22440148	4.7µF, BP, Electrolytic
C08	22440148	4.7µF, BP, Electrolytic
C09	22381681	680PF, Polystyrene
C10	22381681	680PF, Polystyrene
C11	22371472	0.0047µF
C12	22371472	0.0047µF
C13	22371152	1500PF
C14	22371152	1500PF
C17	22371103	0.01µF
C18	22371103	0.01µF
C21	22371822	0.0082µF
C22	22371822	0.0082µF
C23	22371822	0.0082µF
C24	22371822	0.0082µF
C25	22371563	0.056µF
C26	22371563	0.056µF
C27	22371563	0.056µF
C28	22371563	0.056µF
C29	22362150	15PF, K, Ceramic
C30	22362150	15PF, K, Ceramic
C31	22373473	0.047µF, M
C32	22373473	0.047µF, M

Symbol No.	Part No.	Description
AF-C59 (LEFT & RIGHT)		
C01	22440148	4.7μF, BP, Electrolytic
C02	22377104	0.1μF, 100V
C03	22377104	0.1μF, 100V
C04	22440153	470μF, 6.3V, BP, Electrolytic
C05	22373473	0.047μF, M
C07	22381331	330PF, Polystyrene
C09	22373473	0.047μF, M
C10	22373102	0.001μF, M
C11	22373104	0.1μF, M
C12	22321102	150PF, 100V, Polystyrene
C13	22377104	0.1μF, 100V
C14	22377104	0.1μF, 100V
C15	22321102	150PF, 100V, Polystyrene
C17	22361509	5PF, D, Ceramic
C18	22381121	120PF, Polystyrene
C19	22380027	470PF, 125V, G, Polystyrene
C20	22380027	470PF, 125V, G, Polystyrene
C21	22361209	2PF, D, Ceramic
C23	22362473	0.047μF, Z, Ceramic
SPLY-C32		
C01	22340032	0.02μF, 500V, Z, Ceramic
C02	22340032	0.02μF, 500V, Z, Ceramic
C03	22340032	0.02μF, 500V, Z, Ceramic
C04	22340032	0.02μF, 500V, Z, Ceramic
C05	22440095	220μF, 100V, Electrolytic
C06	22440095	220μF, 100V, Electrolytic
C07	22440037	10μF, 100V, Electrolytic
C08	22440037	10μF, 100V, Electrolytic
C09	22340032	0.02μF, 500V, Z, Ceramic
C10	22340032	0.02μF, 500V, Z, Ceramic
C11	22440036	47μF, 100V, Electrolytic
C12	22440036	47μF, 100V, Electrolytic
C15	22340032	0.02μF, 500V, Z, Ceramic
C16	22447330	33μF, 35V, Electrolytic
C17	22443221	220μF, 10V, Electrolytic
C18	22443101	100μF, 10V, Electrolytic
C19	22440096	100μF, 16V, BP, Electrolytic
C20	22372102	0.001μF, K
C21	22372102	0.001μF, K
C22	22442471	470μF, 6.3V, Electrolytic
C23	22440037	10μF, 100V, Electrolytic
C24	22440037	10μF, 100V, Electrolytic
C25	22447470	47μF, 35V, Electrolytic
FILT-C07		
C01	22371152	0.0015μF
C02	22371152	0.0015μF
C03	22371392	0.0039μF
C04	22371392	0.0039μF
C05	22371152	0.0015μF
C06	22371152	0.0015μF
C07	22371392	0.0039μF
C08	22371392	0.0039μF
C09	22371333	0.033μF
C10	22371333	0.033μF
C11	22371104	0.1μF
C12	22371104	0.1μF
C13	22371333	0.033μF
C14	22371333	0.033μF
C15	22371104	0.1μF
C16	22371104	0.1μF
C17	22440148	4.7μF, BP, Electrolytic
C18	22440148	4.7μF, BP, Electrolytic
C19	22440155	10μF, 25V, BP, Electrolytic
C20	22440155	10μF, 25V, BP, Electrolytic
C21	22362680	68PF, K, Ceramic
C22	22362680	68PF, K, Ceramic
SPLY-C31		
C01	22340032	0.02μF, 500V, Z, Ceramic
C02	22340032	0.02μF, 500V, Z, Ceramic
C03	22340032	0.02μF, 500V, Z, Ceramic
C04	22340032	0.02μF, 500V, Z, Ceramic
PA-C22		
C01	22373104	0.1μF, M
C02	22377104	0.1μF, 100V
C03	22377104	0.1μF, 100V
C04	22373473	0.04μF, 50V, M
POWER-SWITCH		
C01	22321206	0.022μF, 125V, M, Polystyrene (Canada)
C1	22340090	4700PF, 250V, Z, Ceramic (Europe, England, Sweden)
C2	22340090	4700PF, 250V, Z, Ceramic (Europe, England, Sweden)
C001	22430050	15000μF, 63V, Electrolytic
C002	22430050	15000μF, 63V, Electrolytic
C003	22342223	0.022μF, K, Ceramic
C004	22342223	0.022μF, K, Ceramic

RESISTORS

All resistor are carbon film 1/4W ±5% unless otherwise noted. K = 1000, M = 1000000

Symbol No.	Part No.	Description
AF-C60		
R01	22570107	120K ohm, Metal Film
R02	22570107	120K ohm, Metal Film
R03	22570134	2.2K ohm, Metal Film
R04	22570134	2.2K ohm, Metal Film
R05	22570135	1M ohm, Metal Film
R06	22570135	1M ohm, Metal Film
R07	22570072	270K ohm, Metal Film
R08	22570072	270K ohm, Metal Film
R09	22570133	100K ohm, Metal Film
R10	22570133	100K ohm, Metal Film
R11	22570133	100K ohm, Metal Film
R12	22570133	100K ohm, Metal Film
R13	22545222	2.2K ohm
R14	22545222	2.2K ohm
R15	22545222	2.2K ohm
R16	22545222	2.2K ohm
R17	22545563	56K ohm
R18	22545563	56K ohm
R19	22570105	56K ohm, Metal Film
R20	22570105	56K ohm, Metal Film
R21	22545182	1.8K ohm
R22	22545182	1.8K ohm
R23	22570108	680K ohm, 1/2W, Metal Film
R24	22570108	680K ohm, 1/2W, Metal Film
R25	22545473	47K ohm
R26	22545473	47K ohm
R27	22500119	47 ohm, 1/8W, Fusible
R28	22500119	47 ohm, 1/8W, Fusible
R29	22500119	47 ohm, 1/8W, Fusible
R30	22500119	47 ohm, 1/8W, Fusible
R31	22500117	220 ohm, 1/8W, Fusible
R32	22500117	220 ohm, 1/8W, Fusible
R33	22545473	47K ohm
R34	22545473	47K ohm
R35	22570124	1K ohm, Metal Film
R36	22570124	1K ohm, Metal Film
R37	22545224	220K ohm
R38	22545224	220K ohm
R39	22545102	1K ohm
R40	22545102	1K ohm
R41	22545153	15K ohm
R42	22545153	15K ohm
R43	22555102	1K ohm
R44	22545102	1K ohm
AF-C62		
R01	22545222	2.2K ohm
R02	22545222	2.2K ohm
R03	22541105	1M ohm
R04	22541105	1M ohm
R05	22545332	3.3K ohm
R06	22545332	3.3K ohm
R07	22545332	3.3K ohm
R08	22545332	3.3K ohm
R09	22545393	39K ohm
R10	22545393	39K ohm
R11	22541105	1M ohm
R12	22541105	1M ohm
R13	22545823	82K ohm
R14	22545823	82K ohm
R15	22545821	820 ohm
R16	22545821	820 ohm
R17	22500118	27 ohm, 1/8W, Fusible
R18	22500118	27 ohm, 1/8W, Fusible
R19	22500118	27 ohm, 1/8W, Fusible
R20	22500118	27 ohm, 1/8W, Fusible
R21	22545224	220K ohm
R22	22545224	220K ohm
R23	22570069	47K ohm, Metal Film
R24	22570069	47K ohm, Metal Film
R25	22570136	6.8K ohm, Metal Film
R26	22570136	6.8K ohm, Metal Film
R27	22545103	10K ohm
R28	22545103	10K ohm
R29	22545474	470K ohm
R30	22545474	470K ohm
R31	22545333	33K ohm
R32	22545333	33K ohm
R33	22545222	2.2K ohm
R34	22545222	2.2K ohm
R35	22555823	82K ohm
R36	22555823	82K ohm
R37	22500070	22M ohm, 1/2W, Composition
R38	22500070	22M ohm, 1/2W, Composition
R39	22500070	22M ohm, 1/2W, Composition
R40	22500070	22M ohm, 1/2W, Composition
R41	22500070	22M ohm, 1/2W, Composition
R42	22500070	22M ohm, 1/2W, Composition
R43	22500070	22M ohm, 1/2W, Composition
R44	22500070	22M ohm, 1/2W, Composition
VR01	22651430	250K ohm, Variable (BALANCE)
VR02	22651428	470K ohm, Variable (TREBLE)
VR03	22651427	140K ohm, Variable (BASS)
FILT-C07		
R01	22545332	3.3K ohm
R02	22545332	3.3K ohm
R03	22545332	3.3K ohm
R04	22545332	3.3K ohm
R05	22545564	560K ohm
R06	22545564	560K ohm
R07	22545564	560K ohm
R08	22545564	560K ohm
R09	22545682	6.8K ohm
R10	22545682	6.8K ohm
R11	22545333	33K ohm
R12	22545333	33K ohm
R13	22545102	1K ohm

Symbol No.	Part No.	Description
R14	22545102	1K ohm
R15	22545274	270K ohm
R16	22545274	270K ohm
R17	22545224	220K ohm
R18	22545224	220K ohm
R19	22570121	330 ohm, 2W, Metal Oxide Film
R20	22570121	330 ohm, 2W, Metal Oxide Film
R21	22555222	2.2K ohm
R22	22545222	2.2K ohm
AF-C59 (LEFT & RIGHT)		
R01	22545474	470K ohm
R02	22545222	2.2K ohm
R03	22545473	47K ohm
R04	22545333	33K ohm
R05	22545101	100 ohm
R06	22545101	100 ohm
R07	22545332	3.3K ohm
R08	22545332	3.3K ohm
R10	22570144	1.8K ohm, Metal Film
R11	22570069	47K ohm, Metal Film
R12	22500117	220 ohm, 1/8W, Fusible
R13	22500117	220 ohm, 1/8W, Fusible
R14	22545183	18K ohm
R15	22500019	47 ohm, 1/8W, Fusible
R16	22500019	47 ohm, 1/8W, Fusible
R17	22570123	33 ohm, 1W, Metal Oxide Film
R18	22570123	33 ohm, 1W, Metal Oxide Film
R19	22500120	560 ohm, 1/8W, Fusible
R21	22545332	3.3K ohm
R22	22500120	560 ohm, 1/8W, Fusible
R23	22545563	56K ohm
R24	22545103	10K ohm
R25	22545103	10K ohm
R26	22500115	330 ohm, 1/8W, Fusible
R27	22500115	330 ohm, 1/8W, Fusible
R28	22555473	47K ohm
R29	22545333	33K ohm
VR01	22658325	2K ohm, Semi-fixed Variable (IDLING ADJUST)
PA-C22		
R01	22500087	0.22 ohm, 5W, Wire Wound
R02	22500087	0.22 ohm, 5W, Wire Wound
R03	22500047	10 ohm, 5W, Wire Wound
R04	22570120	10 ohm, 1W, Metal Oxide Film
SPLY-C32		
R01	22570117	4.7K ohm, 1W, Metal Oxide Film
R02	22570117	4.7K ohm, 1W, Metal Oxide Film
R03	22570117	4.7K ohm, 1W, Metal Oxide Film
R04	22570117	4.7K ohm, 1W, Metal Oxide Film
R05	22545333	33K ohm
R06	22545333	33K ohm
R07	22570137	2.7K ohm, 2W, Metal Oxide Film
R08	22570137	2.7K ohm, 2W, Metal Oxide Film
R09	22570093	470 ohm, 2W, Metal Oxide Film
R10	22570008	680 ohm, 1W, Metal Oxide Film
R11	22545272	2.7K ohm
R12	22545223	22K ohm
R13	22545100	10 ohm
R15	22545223	22K ohm
R16	22545224	220K ohm
R17	22545223	22K ohm
R18	22545222	2.2K ohm
R19	22545224	220K ohm
R20	22545473	47K ohm
R21	22545222	2.2K ohm
R22	22545222	2.2K ohm
R23	22545473	47K ohm
R24	22545122	1.2K ohm
R25	22545472	4.7K ohm
R26	22545122	1.2K ohm
R27	22545472	4.7K ohm
R28	22545152	1.5K ohm
R29	22545273	27K ohm
R30	22555684	680K ohm
R31	22555472	4.7K ohm
R32	22500119	47 ohm, 1/8W, Fusible
VR01	22658325	2K ohm, Semi-fixed Variable (VOLTAGE ADJUST)
PIN-C08		
R01	22545332	3.3K ohm
R02	22545332	3.3K ohm
R03	22545334	330K ohm
R04	22545334	330K ohm
R05	22545104	100K ohm
R06	22545104	100K ohm
R07	22570133	100K ohm, Metal Film
R08	22570133	100K ohm, Metal Film
R09	22570133	100K ohm, Metal Film
R10	22570133	100K ohm, Metal Film
AF-C61		
R01	22545222	2.2K ohm
R02	22545222	2.2K ohm
R03	22545222	2.2K ohm
R04	22545222	2.2K ohm
R05	22545222	2.2K ohm
R06	22545222	2.2K ohm
R07	22545472	4.7K ohm
R08	22545472	4.7K ohm

Symbol No.	Part No.	Description
MUTING-PC		
R01	22570069	47K ohm, Metal Film
R02	22570069	47K ohm, Metal Film
R03	22570104	33K ohm, Metal Film
R04	22570104	33K ohm, Metal Film
R05	22570138	5.6K ohm, Metal Film
R06	22570138	5.6K ohm, Metal Film
SPLY-C31		
R01	22570023	2.2K ohm, 2W, Metal Oxide Film
R02	22570023	2.2K ohm, 2W, Metal Oxide Film
VR001	22650428	100K ohm, Variable (VOLUME)
CABINET PARTS		
B1	22841123	Cover Ass'y, Top
B3	22701324	Screw, BID M4 x 12mm
B4	22701326	Screw, Tapping, M3 x 8mm
B5	22705022	Rivet, Plastic, 3 x 5.5
B6	22863895	Nameplate, (Sweden)
	22863896	Nameplate, (Canada)
	22864122	Nameplate, (Europe, England)
B9	22711459	Plate, Jack (Europe)
	22711420	Plate, Jack (Sweden, England)
	22711421	Plate, Jack (Canada)
B16	22845211	Knob, Lever
B17	22756445	Mask Sheet, Volume
B18	22834848	Knob, 50.5mm, Volume
B19	22843524	Panel Ass'y
B20	22834842	Knob Ass'y, 17.5mm
B21	22834851	Knob, Selector
B23	22874032	Foot
B24	22701437	Screw, Tapping M4 x 16mm
B26	22834849	Knob Ass'y, Power
B27	22705020	Rivet, Plastic, 3 x 4.5mm
B31	22756783	Bush, Power Cord (Europe)
	25845528	Bush, Power Cord (Canada)
	25845556	Bush, Power Cord (Sweden, England)
B34	22830050	Holder, Knob
B35	22756462	Mask Sheet-2
B36	22756464	Mask Sheet-FU
B37	22950672	Label, Fuse 200mAT (Europe, England, Sweden)
B38	22950645	Label, Fuse 250mAT (Europe, England, Sweden)
ACCESSORIES		
	22954368	Instruction Book Ass'y (Europe, Sweden)
	22954377	Instruction Book Ass'y (Canada)
	22954376	Instruction Book Ass'y (England)